

ABOUT THE LAB:

We will study the JAK-STAT signaling pathway using SimBiology.

- 1. Background.** Read the following: http://en.wikipedia.org/wiki/JAK-STAT_signaling_pathway, look at Supplementary Figure 1 of the article <http://www.ploscompbiol.org/article/info%3Adoi%2F10.1371%2Fjournal.pcbi.0030130#s4>. If you want, you can also consult the Valentio and Pierre paper on moodle.
- 2. Creating the signal transduction diagram.** Create a simplified signal transduction diagram for the JAK-STAT signaling pathway based on the Wikipedia page.
- 3. SimBiology implementation.** Implement the model based on your diagram in SimBiology. Wherever possible, use parameters from Supplementary Table 1 of the PLoS article.
- 4. Analysis.** Run a simulation of the model. What do you observe? Also run a sensitivity analysis on the JAK and the STAT concentrations as you vary all model parameters.